



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/581,933	06/06/2006	Masahiro Watanabe	12336/10:1	1816
3528	7590	08/08/2007		
STOEL RIVES LLP 900 SW FIFTH AVENUE SUITE 2600 PORTLAND, OR 97204-1268			EXAMINER LISTVOYB, GREGORY	
			ART UNIT 1711	PAPER NUMBER
			MAIL DATE 08/08/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/581,933

Applicant(s)

WATANABE ET AL.

Examiner

Gregory Listvoyb

Art Unit

1711

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 May 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 and 22-32 is/are pending in the application.
- 4a) Of the above claim(s) 8-21 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 and 22-32 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Election/Restrictions

Applicant's election without traverse of Group I in the reply filed on 5/18/07 is acknowledged.

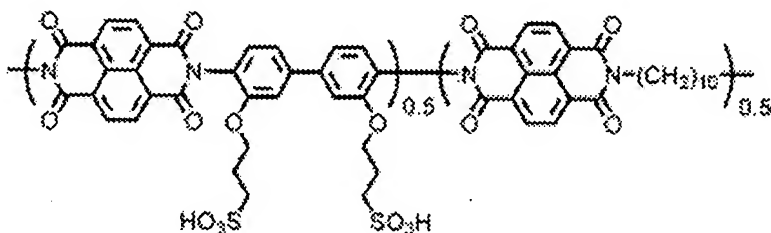
Applicant's addition of Claims 22-32 is acknowledged.

Claim Rejections - 35 USC § 102

Claims 1-5, 22 rejected under 35 U.S.C. 102(a) as being anticipated by Asano et al (Hydrolytically stable polyimide, Chem of Materials, vol 16, 2841-2843) herein Asano.

Note that applicant can't rely on foreign priority date until it perfected with Sertified Translation.

Asano discloses a polyimide where the basic skeleton is represented by the following general formula (2) (see page 2842) :



Art Unit: 1711

This formula is identical to one in the Application (see Test Example 1) and obtained with the same method of synthesis (i.e. using the same monomers BSBB, DMDA, TCND, see Test Example 1). Therefore, the structures of the final polymers are inherently identical.

Asano teaches that a polymerization proceeds well in Cresol (the same solvent as the Applicant uses) resulting in high molecular weight polymer (see page 2842). Therefore, n and m numbers equal to 0.5 reflect not a degree of polymerization, but the fact that the ratio between two polyimide fragments is 1:1. The degree of polymerization is inherently higher than 2.

Claim Rejections - 35 USC § 103

Claims 26, 27, 29 rejected under 35 U.S.C. 103(a) as being unpatentable over Asano et al in combination with Yin et al (Synthesis, proton conductivity., Polymer, 44(2003) 4509-4518) herein Yin.

Asano discloses a polyimide where the basic skeleton is represented by the following general formula (2) (see page 2842) (see discussion above).

Asano does not disclose molecular weight characteristics of his polyimide.

Art Unit: 1711

Yin discloses a polyimide for fuel cell, which contains $O(CH_2)_3SO_3H$ groups (see page 4513, Scheme 2). Yin teaches molecular weight of the polyimide is equal to 55000.

It would have been obvious to a person of ordinary skills in the art at the time the invention was made that molecular weight of a polyimide for fuel cell should exceed 5000 in order to obtain good mechanical properties and film-forming capabilities.

Claim 6, 23-25, 30-32 rejected under 35 U.S.C. 103(a) as being unpatentable over Asano in combination with Lee et al (US 7157548) herein Lee.

Asano discloses a polyimide where the basic skeleton is represented by the following general formula (2) (see discussion above)

Asano does not disclose a cross-linking structure in his polyimide and its molecular weight.

Lee discloses a proton-conductive polyimide for fuel cell applications, which has cross-linking moieties in the main chain (see Abstract) and molecular weight of 100000-100000 (see line 0076).

Art Unit: 1711

It would have been obvious to a person of ordinary skills in the art at the time the invention was made that molecular weight of a polyimide for fuel cell should exceed 5000 in order to obtain good mechanical properties and film-forming capabilities.

It would have been obvious to a person of ordinary skills in the art at the time the invention was made that polyimide for fuel cell applications may have a crosslinking moieties in its structure in order to increase material stability to degradation and its mechanical properties.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gregory Listvoyb whose telephone number is (571) 272-6105. The examiner can normally be reached on 9am-6pm.

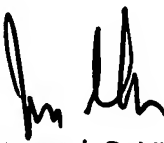
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on (571) 272-1078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1711

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Gregory Listvoyb
Examiner
Art Unit 1711

GL



James J. Seidleck
Supervisory Patent Examiner
Technology Center 1700